



## Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact [support@jstor.org](mailto:support@jstor.org).

PROCEEDINGS  
OF THE  
ACADEMY OF NATURAL SCIENCES  
OF  
PHILADELPHIA.

---

1921

---

**TWO WEEKS COLLECTING IN GLACIER NATIONAL PARK.**

BY ANNETTE F. BRAUN.

During the summer of 1920, the writer had a brief, but very successful collecting trip in Glacier National Park, Montana, which disclosed an unexpectedly rich insect fauna. A total of fourteen days, in whole or part, was spent in collecting between July 14 and July 29, inclusive.

Glacier National Park lies in northwestern Montana, including within its boundaries a mass of mountain peaks, the highest of which rises to an elevation of 10,438 feet. It is traversed in a northwest-southeastwardly direction by the Continental Divide. On the west side, the waters flow into the Pacific through the Columbia River; on the east side, in the south, to the Missouri River, in the north beyond the Hudson Bay Divide, to Hudson Bay. Adjoining the park on the east lie the foothills and plains; at the lower altitudes on this side of the park, about 5000 feet, there is a blending of foothills and mountain vegetation which may in part account for the richness and diversity of the fauna in the dry mountain meadows at this altitude. It was on the east side of the park that most of my collecting was done.

Although my attention was directed principally toward securing as adequate a representation of Microlepidoptera as possible within the limited time spent in the park, specimens in other groups of

Lepidoptera were collected when the opportunity offered. The number of such species perhaps totals in the neighborhood of one hundred. In addition a few general observations on the abundance and distribution of other orders of insects in the various ecological regions and at different altitudes were made and will be referred to below.

The region is forested except at the higher altitudes and on wind-swept mountain sides, with a rather dense growth of coniferous trees. Some of the steeper rocky slopes are comparatively treeless, with a scanty herbaceous vegetation of many species, with scattered spruce and pine. In addition to these, there are two other types of comparatively treeless areas, which furnished the best collecting grounds, both as to species and numbers of individuals. One of these is the open dry rocky meadow, which supports a great variety of herbaceous plants and which yielded the greatest number of Microlepidoptera. The other is a moister meadow, with taller, more luxuriant vegetation.

The coniferous forest proved to be the poorest collecting ground in the park. This was especially true where the predominant undergrowth was the Indian basket grass; here practically nothing was secured. Where the undergrowth was of a more varied character, particularly near the margins of streams, a greater number of species was found. The Geometridae led in numbers here.

The rather open steep rocky slopes and cliffs, of which the sides of Goat Mountain above St. Mary Lake are an example, yielded some species which were not found elsewhere. Collecting here was only successful early in the morning, at sunrise just as the sun strikes the rocks, or in the late afternoon.

The moister meadow referred to above may be found in forest openings, on the moister mountain slopes, or in the more sheltered valleys, such as the valley of Canyon Creek or the upper part of Swiftcurrent Valley. The most conspicuous herbaceous plants of these meadows in July are the cow parsnip, *Heracleum lanatum*, and the false forget-me-not, *Lappula floribunda*. Shrubs abound and a dense growth of alders occurs where the water supply is plentiful enough. Such localities proved to be prolific collecting grounds. In the Microlepidoptera the most abundant and characteristic species here was *Choreutis occidentella* Dyar. *Simaethis fabriciana* var. *alpinella* Busck, several species of Incurvariidae flying in sunshine, and Pterophoridae were usually present in considerable numbers. Butterflies in limited numbers were seen also. Toward the end of

July, *Gnophaela latipennis* var. *vermiculata* became very plentiful, flying by dozens in the air above the alders. The numerous shrubs, most of which were in bloom at the time of my stay, attracted many Coleoptera, chiefly Longicorns, Clerids and Mordellids; Hymenoptera, of which the parasitic forms were especially noticeable, and many Diptera, of which by far the greatest number were Syrphidae. The Coleoptera were most plentiful during the first four or five days of my stay, and dwindled in numbers very markedly toward the end of July. These meadows lie at altitudes of 4500 feet to 5500 feet.

The dry meadow occupies drier, rocky and more exposed situations usually at altitudes around 5000 feet; good examples of such meadows where extensive collections were made are found at Glacier Park Station, the lower end of Two Medicine Lake, the north end of McDermott Lake, and on the gentle slopes near the mouth of Canyon Creek. These meadows are veritable flower gardens, exhibiting an unsurpassed richness of flora. At the end of July, the blooming period was about over at Glacier Park Station, and the meadow was becoming dry and brown, with a corresponding dwindling in species of Lepidoptera. These meadows are by far the richest of any of the localities where collections were made in point of species and numbers of individuals. Microlepidoptera were most active early in the morning, while the dew was still on the leaves, and in the evening at dusk. In most instances specimens taken in the evening were of different species from those flying in the morning. *Coleophora*, Elachistidae, some Incurvariidae, many species of Gelechiidae were the most characteristic groups present among the Tineina; Tortricids were represented by a great number of species, many very numerous in individuals, notably *Cnephasia argentana* Clerck which flew in swarms; Pyralids, among which perhaps the most common was *Pyla* sp., and many Crambids were present. Butterflies flew plentifully during the middle of the day; these were fairly numerous at all places during my stay in the park, but became especially abundant during the last five or six days of July; swarms of them congregated on every moist stream bank and on the trails. The flowering shrubs, scattered through the meadows and fringing the forests, attracted as in the moist meadows, many Coleoptera, Hymenoptera and Diptera.

The subalpine meadows occurred at the higher altitudes, 6000 feet or over, depending upon slope exposure, topographic conditions and persistence of snow. These meadows produced a disappoint-

ingly small number of species. The Gelechiid, *Gnorimoschema ochreostrigella*, was the only really common micro; some species of Tortricids were found, and Crambids were fairly numerous. Butterflies were not uncommon; and representatives of several genera of day-flying Noctuids were captured on flowers. The most striking feature of the insect fauna at the higher altitudes at this time was the presence of great numbers of Syrphus flies, representing many species. Bumble-bees were common in the meadows here, with a mimicking Syrphus fly.

The microlepidopterous fauna of the region shows a mingling of elements derived from several physiographic areas; as might be expected from its situation at the eastern edge of the Rocky Mountains, with the plains to the east, and its connection with the Pacific Coast and Sierra Nevada through the Columbia River Basin. Its position in the Northern Rocky Mountain Region relates its flora and fauna to that of the north and makes possible connections with more easterly forms. Thus we have species here hitherto reported from Texas, New Mexico and Arizona, from the more southern Rocky Mountains, from the Sierra Nevada of California, from Oregon, and species whose range includes the whole northern United States and Canada. The Lepidoptera of the Kootenai District of British Columbia (Dyar, 1904) is on the other hand, most nearly related to that of the Sierra Nevada. This region, although not far from Glacier National Park, lies entirely on the Pacific side of the Continental Divide in the Columbia River drainage basin.

All of the localities mentioned in the following pages may be found on the U. S. Geological Survey topographic map of Glacier National Park. The altitudes of the chief points at which collections were made are as follows:

Glacier Park Station, 4796 feet.

Two Medicine Lake, 5175 feet.

St. Mary, 4472 feet.

Going-to-the-Sun Chalets, on St. Mary Lake, about 4600 feet.

McDermott Lake, 4860 feet.

Swiftcurrent Pass, 7176 feet.

Granite Park, 6500 feet.

In this paper only those species belonging to the families formerly grouped together as Tineina are included. The Tortricid families of which many species were collected are omitted here. In addition to the species of Tineina recorded in this paper as occurring in Glacier National Park, many others, chiefly Gelechiidae and Cole-

ophoridae, some of them belonging to genera not reported from this country, were collected. Strangely, no member of the family Tineidae, which is usually well represented in collections from western localities, was secured.

The types and paratypes of the new species are all for the present in the writer's collection.

#### COSMOPTERYGIDAE.

##### *Cyphophora tricristatella* Chambers.

Occurring most commonly in dry meadows at the lower altitudes in the region (about 5000 feet); one specimen at Granite Park, July 26 (6400 feet).

##### *Psacaphora deceptella* n. sp.

Palpi dark brown outwardly, with a silvery metallic luster inwardly; antennae dark brown, apical four or five segments black preceded by six or seven white segments. Head and thorax leaden metallic, with a purplish iridescence, base of wing silvery metallic with blue and purple iridescence, followed by a large dark brown patch on costa extending a little below fold. Ground color of remainder of wing golden orange. The dark brown patch is edged outwardly and beneath by bluish silvery metallic scales, which extend outward beneath the fold to a large patch of dark brown raised scales. A similar large patch of raised scales at tornus, preceded by a streak of metallic scales which forms its inner border and then extends obliquely upward over the end of the cell to the costal cilia; on the end of the cell these metallic scales form a slightly convex patch. First discal spot round, silvery, edged with black. A white costal spot at three-fourths. Extreme margin of the wing around apex and cilia dark brown, with a faint purple luster; a row of iridescent metallic scales around apex at base of cilia from the white costal spot to the tornus. Hind wings dark brown. Legs dark brown, tips of segments whitish. Abdomen dark brown above and below. Expanse, 10 mm.

Type (♂), Glacier Park Station, July 29.

Close to *terminella* Westwood; at first glance mistakable for it. The chief points of difference are the different coloration of the antennae, the orange apex of the wings, and the details of the silvery markings.

##### *Psacaphora sexstrigella* n. sp.

Palpi silvery white, the second segment densely dusted with black in transverse rows, third segment with a few blackish specks. Face yellowish, shading to dull leaden metallic on the crown. Thorax and fore wings dark brown, mixed with leaden metallic scales, which predominate in the basal two-thirds of the wing. Basal

fifth of wing purplish; an orange spot at basal fifth below fold but not reaching dorsum; a large black scale tuft near middle of wing below fold; a similar tuft at tornus, bordered toward base with white scales; a little behind this, on costa, a large white spot; a series of six white streaks, three costal and three terminal, around apex, arranged fan-like, not reaching into the cilia. Cilia brown, paler at the base. Hind wings and cilia brownish gray. Legs black, with tips of segments and a bar across the hind tibiae white. Abdomen dark brown, tip orange. Expanse, 9 mm.

Type (♀), McDermott Lake.

The larva mines leaves of fireweed, *Chamaenerion angustifolium*, making a linear mine which enlarges into a pale greenish blotch. The imago emerged August 14.

**Mompha unifasciella** Chambers.

The galls common throughout the park on stems of fireweed. Imagoes emerged from August 12 to 22.

#### GELECHIIDAE.

In addition to the species which are referred to or described below, a limited number each of other species were collected.

**Aristotelia rubidella** Clemens.

Common in the dry mountain meadows at about 5000 feet.

**Telphusa praeixa** n. sp.

Labial palpi dark fuscous, paler inwardly; a very narrow whitish annulus is faintly indicated at the basal third of the second segment, a broad white annulus at apical third; base, an annulus before the tip and extreme tip of third segment white. Antennae fuscous, annulate with pale gray above, most distinctly toward the apex. Head pale gray, scales tipped with white. Thorax and fore wings dark fuscous, sprinkled with black scales in the middle and apical part of the wing; scales of the thorax and wing near the base minutely tipped with whitish. From basal fourth of costa an outwardly oblique pale fascia (scales pale gray, white-tipped, concolorous with the head), narrowing toward dorsum, reaches a little beyond the fold; it is bordered inwardly by a heavy line of black scales, which ends in a small patch of raised black and whitish scales just below the fold. A small patch of raised black and white scales on the fold beyond the fascia. An indistinct pale spot in the middle of costa; an irregular transverse pale fascia at three-fourths concolorous with the oblique fascia, scarcely reaches the dorsum, and sends a short broad inward projection basalwards in the middle of the wing. At the inner edge of this projection is a small patch of raised black scales. Cilia gray, speckled with white-tipped black scales. Hind wings and cilia fuscous. Legs fuscous, barred with white, tarsi white-tipped. Expanse, 13.5–14 mm.

Glacier Park Station, July 29, in a pine and aspen thicket.  
Type and two paratypes in the writer's collection.

**Gnorimoschema ochreostrigella** Chambers.

This species is very common in the open meadows at the higher altitudes. Many specimens collected at Granite Park and Swift-current Pass, 6400 to 7100 feet; July 25-26.

Some specimens show distinctly the ochreous streaking on the fore wings; in others there is scarcely a vestige of the ochreous tint, and the wing is of a dull drab color, dusted with fuscous. The expanse of wings varies in these specimens from 12 to 17 mm.

**Gnorimoschema triocellella** Chambers.

Glacier Park Station, July 14. In some specimens the apical portion of the wing except on the extreme margins is densely dusted with nearly black scales.

**Gnorimoschema erigeronella** n. sp.

Palpi white inwardly, densely dusted with black beneath and outwardly; base and a more or less distinct band near apex of second segment whitish; base and extreme tip of third segment whitish. Antennae whitish ochreous, banded with fuscous. Head and thorax white, speckled with black, with some ochreous on the crown, and on the patagia and median line of thorax. Fore wings ochreous, marked with lines of white black-barred scales, which follow the veins and the margins of the wing, leaving the fold ochreous. The lower margin of the cell is broadly thus clothed, and the dorsal part of the wing below the fold has only a short longitudinal streak of ochreous which is sometimes entirely wanting. Around the apex the scales on the interspaces are more broadly barred with black than those along the veins. An elongate black spot or dash at the middle of the cell just below and in contact with the line of scales along the upper margin; a similar spot at the end of the cell. These are the two most distinct spots, but there is usually an aggregation of blackish scales on the fold just below the first discal spot; a similar spot on the ochreous ground color just within the costal margin near base. Hind wings silvery gray in the female, darker in the male; cilia gray with ochreous bases. Legs white, densely dusted with fuscous, hind tibiae faintly barred with white; tarsal segments tipped with white. Expanse, 11.5-14 mm.

Glacier Park Station, July 28; a specimen reared emerged August 13.

Type (♂) and two paratypes (♀); one of the females reared from an irregular mine on *Erigeron speciosus* DC., collected July 14, when most of the mines were untenanted.



This species is very close to *artemisiella* Kearf.; the two are almost identically marked, but *erigeronella* is a narrow, more slender-winged species and is considerably larger.

**Gnorimoschema contraria** n. sp.

Labial palpi blackish, minutely peppered with white; second segment whitish inwardly, third with a white spot within near base. Antennae dark brown with narrow paler rings. Head and thorax dark fuscous, patagia and tip of thorax reddish brown. Costal two-thirds of the fore wing reddish brown, with the costa and veins marked with lines of white broadly black-barred scales, the lines sometimes confluent in the apical half of the wing; the dorsal third of the wing from the base to the apex is clothed with white scales barred before their tips with black of varying width. The dorsal margin is distinctly lighter than the remainder of the wing. The paler dorsal portion is irregular indented with blunt tooth-like projections of the brown ground color; these teeth are partially filled up and edged with blackish scales, heightening the contrast between the two areas. Three of these patches of black scales stand out prominently; an elongate one near base, one in each of the two succeeding teeth and extending up onto the cell. Cilia fuscous, specked with whitish black-barred scales. Hind wings and cilia gray, with a faint reddish tinge. Legs densely dusted with fuscous. Expanse, 15–16 mm.

Type (♂), McDermott Lake, July 22; three paratypes (♂ and ♀), Glacier Park Station, July 14; in dry meadows.

Although allied to the other longitudinally streaked species, the paler dorsal margin gives it a very different aspect; the pattern of the dorsal half of the wing is that of *serratipalpella* Chambers. In the female, the brown ground color is less obscured by the dusted lines than in the males.

**Anacamptis niveopulvella** Chambers.

Common at Glacier Park Station, where the larvae feed on willow and aspen. Both this and the following species are referable to *Compsolechia* Meyrick, if this genus is maintained distinct from *Anacamptis*.

**Anacamptis paltodoriella** Busck.

One specimen of this beautiful species taken on the car window, exact locality not known, presumably western Montana.

The type locality is New Mexico.

**Gelechia lugubrella** Fab.

McDermott Lake, July 22; Glacier Park Station, July 29; in dry meadows. Previously reported in this country from Maine.

***Gelechia unifasciella*** Busck.

Two Medicine Lake, July 15-16; in dry mountain meadows. These specimens answer minutely the description of this species, the types of which came from Williams, Arizona, but the expanse is somewhat less (14-15 mm.).

***Gelechia metallica*** n. sp.

Palpi bronzy brown, brush on second segment blackish. Antennae dark brown. Head, thorax and fore wings lustrous dark bronzy brown, the wings entirely immaculate; on underside of the fore wings of the male a patch of yellowish oval slightly convex scales covers the disc. Hind wings shining pale fuscous, with slightly yellowish elongate scales on the disc. Abdomen purplish black above, underside of abdomen and legs shining dark bronzy brown. Expanse, 9.5-11.5 mm.

Glacier Park Station, July 14 and 29; Going-to-the-Sun, July 20-21; McDermott Lake, July 24; in dry mountain meadows, flying in the early morning.

Type (♂) and thirty paratypes, all males.

Very unlike any other described American species. In the hind wing, veins 3 and 4 are stalked, veins 6 and 7 closely approximated.

***Gelechia abradescens*** n. sp.

Palpi, antennae and head dark brown; outer side of second segment of palpi with a few scattered whitish scales. Thorax and fore wings shining dark brown, under a lens slightly irrorated; sometimes a few scattered whitish scales along the veins; an indistinct elongate blackish spot at about the middle of the fold, and obliquely above and beyond it in the cell a small blackish spot; a similar but larger spot at the end of the cell; at apical third a whitish spot on the costa, usually confined to the extreme costa, occasionally, especially in the female, extending about one-quarter across the wing. Cilia brownish gray, with a faint line of brown scales through the middle. Hind wings brownish gray, cilia brown at their bases. Underside of body and legs uniformly dark brown without paler markings. Expanse, 17-20 mm.

Glacier Park Station, July 14, in dry meadows.

Type (♂) and eleven paratypes (♂ and ♀).

This species seems to be allied to *pravinominella*, *ornatifimbriella* and *amorphaeella*.

The wings are very easily abraded, having then more of a dusted appearance, due to exposure of the paler bases of the scales. In such specimens the black spots are more conspicuous.

***Gelechia conspersa*** n. sp.

Palpi pale grayish brown, mixed with whitish, third segment with a minute black spot at the base outwardly. Antennae brown,

banded with whitish. Head and thorax pale grayish brown. Fore wings pale grayish brown, bases of scales whitish, dusted with scattered whitish scales, which occur singly except in the apical third of the wing, where they form ill-defined spots. A row of these extends around the apex from the apical third of costa to the tornus. The costal margin is slightly darkened before the first of these spots. A faint darker small spot on disc and a larger one at end of cell. Cilia whitish at their bases, brown at the tips with an indistinct brownish line through the middle. Hind wings pale brownish gray, cilia whitish at the base. Upper side of abdomen gray, tuft whitish. Underside of body and legs, except the hind tibiae and tarsi, dark brown, sparsely dusted with white. Hind tibiae and tarsi whitish inwardly, dusted with brown outwardly except at tips of segments. Expanse, 18–19 mm.

Type (♂), McDermott Lake, July 24; one paratype, St. Mary, July 18.

***Gelechia alternatella*** Kearfott.

Two Medicine Lake, July 16, in dry meadows.

***Gelechia versutella*** Zeller.

Very common on trunks of aspens, on the leaves of which the larva feeds, Glacier Park Station, July 29. The moths are practically invisible except when moving, so closely do they resemble the darker patches of bark.

#### OECOPHORIDAE.

***Agonopteryx rosaciliella*** Busck.

Reared from larvae sewing together leaves of sweet cicely, *Osmorhiza* sp., near Going-to-the-Sun Chalets. Larvae collected July 21; imago, August 7.

***Agonopteryx nivalis*** n. sp.

Palpi creamy white, slightly shaded with brownish; antennae brownish, darker toward the tips. Head, thorax and fore wings creamy white; fore wings with a faint rusty tinge beneath fold near base of dorsum and along apical third of costa. Minute brownish and blackish spots along costa, three or four larger and more diffuse on apical third; last row of scales along termen between veins, brown; a few scattered brown scales, chiefly along the veins; a very small black spot within the costa near base; a small black spot on middle of cell and obliquely above and before it, a second similar spot; a larger transverse spot at end of cell. Hind wings creamy white. Legs white, dusted with fuscous, the fore pair most densely. Expanse, 23 mm.

Type (♂), Two Medicine Lake, July 16.

Perhaps most like *pallidella* Busck, but without demarcation between basal area and remainder of wing.

***Enicostoma quinquecristata* n. sp.**

Labial palpi with the anterior edge of second segment pale reddish ochreous, a black spot near base and above middle; remaining scales of brush gray with white tips; third segment yellowish, with an annulus near base and the tip black. Antennae gray. Scales of head and thorax gray, with white tips. Fore wings ashen brown, more or less thickly bestrewn with dark gray, minutely white-tipped scales, with a tendency to longitudinal streaking in the apical third of the wing; groups of brown white-tipped scales form a series of indistinct marginal spots around the apex. Five scale tufts formed of white-tipped black scales; at one-third, a very large tuft on fold and a smaller one above in the cell; a large tuft at the lower angle of the cell and a smaller one above it; between these two pairs, on the middle of the cell, a fifth large tuft. Cilia grayish brown, with scales white-tipped. Hind wings pale gray, cilia fulvous at the base. Legs densely dusted with gray, hairs on upper side of hind tibiae pale brownish, spreading scales on underside gray with white tips. Expanse, 17-19 mm.

Type (♂), Two Medicine Lake.

The type and twelve paratypes (♂ and ♀) reared from larvae webbing leaves of *Penstemon confertus* Dougl., a common small-flowered pale yellow species, collected on the trail to Dawson Pass, Two Medicine Lake, altitude about 5500 feet. The larva lives under a web in a folded leaf, eating out patches of the leaf. The web is usually on the upper side, sometimes on the lower side of the leaf near the base. Surface of pupa clothed with fine erect hairs. Imagoes, August 6-17.

Although the food plant was common everywhere throughout the region in the dry meadow at the lower altitudes, the larva of this species was not observed elsewhere.

The generic position of the species was determined by Dr. Edward Meyrick, who states that it agrees with the type of the genus in all essential particulars, except in the palpi. In *E. quinquecristata*, the second segment of the palpi is more thickened with scales, and these are more expanded toward apex than in the type.

The genus *Enicostoma* is given in Dyar's "List" as a synonym of *Semioscopis*.

For convenience of reference, a detailed statement of the generic characters as shown by *E. quinquecristata* follows:

Head with loosely appressed scales, side tufts projecting in front; tongue developed, densely scaled except towards tip. Antennae two-thirds, with slightly spreading whorls of scales at apices of segments, alike in both sexes, basal segment without pecten. Labial palpi very long, recurved; second segment clothed with a dense

triangular brush of scales beneath and above, laterally compressed, sharp-edged in front, brush horizontally truncate at apex; third segment slender, acute, seeming to arise from center of the brush of second, visible portion about one-third the length of the second. Maxillary palpi short, appressed to tongue, third segment equaling in length the two preceding segments. Posterior tibiae clothed with long hairs above, and rough spreading long scales beneath. Fore wings with large tufts of raised scales; 1b furcate at base, 2, 3 and 4 about equidistant, 2 from near end of cell; 2 and 3 arising perpendicular to lower margin of cell, curving outward and running straight to termen; 5 nearer 4, 7 and 8 stalked, 7 to costa almost at apex, 11 from before middle. Hind wings 1, elongate-ovate, cilia 1; 3 and 4 connate, 5-7 parallel, 5 nearer 6.

**Epicallima quadrimaculella** Chambers.

Amongst rocks, near Going-to-the-Sun, on St. Mary Lake, July 20-21. All of the specimens were taken flying in the sunshine at sunrise, and none were seen later than 7.30 A. M.

**Epicallima dimidiella** Walsingham.

Two Medicine Lake, July 15; Going-to-the-Sun, July 18 and 21. Flying actively only in early morning; several taken flying in company with *E. quadrimaculella*.

**Borkhausenia haydenella** Chambers.

Two males and one female of this species were collected, one male at Two Medicine Lake, July 15, the other two specimens on the cliffs on Goat Mountain above Going-to-the-Sun Chalets, July 18. The female has the wing more densely dusted with white than the male, and the transverse spot at the basal third large and more clearly defined.

#### ETHMIIIDAE.

**Ethmia albistrigella** Walsingham.

Two Medicine Lake, July 16; Granite Park, 6500 feet, July 25. Collected near plants of false forget-me-not, *Lappula floribunda*, which may possibly be the food plant.

#### GLYPHIPTERYGIDAE.

**Simaethis fabriciana** var. **alpinella** Busck.

St. Mary, July 18; Canyon Creek, 5500 feet, July 23, in openings in the forest.

**Choreutis pernivalis** n. sp.

Head and palpi whitish, scales of tuft fuscous towards tips. Basal half of fore wing light brown, with a broad straight pure white

fascia across the middle of the brown; fascia margined outwardly along the middle of its length with silvery scales; a basal streak of silvery scales just within the costal margin. Outer half of wing white, except a narrow band around apex and along termen, which is ochreous, dusted with white and fuscous. White patch with two longitudinal black and one or two fuscous lines of scales; the two black lines ending at the outer border of the white patch in confluent black spots, nearly overlaid with silvery scales; a wedge-shaped black spot beneath these, silvery margined, and a large quadrate black patch just above fold, with two transverse lines of silvery scales and a few silvery scales at its upper outer angle. Cilia white with a pale fuscous line through the middle. White marks more or less distinctly repeated on the underside. Hind wings more pointed than usual, brownish fuscous, underside with a whitish irregular submarginal patch; ground color shading darkest next to this patch. Underside of thorax white, abdomen fuscous. Legs whitish, tibiae and tarsi brownish. Expanse, 11.5–12 mm.

Type (♂), and one paratype (♀), Glacier Park Station, July 14.

Very close to *extrinsicella* Dyar, from which it differs by the pure white of the fore wings, the whitish irregular patch on the underside of the hind wings, and the narrower wings, particularly the narrower more pointed hind wings.

***Choreutis caliginosa* n. sp.**

Palpi fuscous and white intermixed; antennae dark brown, with white annulations. Head and thorax dark brownish gray, a few scales at the posterior margin of the head and a very narrow line along the inner edge of the patagia whitish. Fore wings dark brown; a curved whitish fascia at basal fourth, palest and broadest on the dorsum and not reaching the costa; a basal streak of iridescent scales just within the costa; outer half of the wing, except the apical part, occupied by a paler patch of whitish-tipped brown scales, marked at the inner and outer edge on the costa by a white spot, below which are a few iridescent scales; before the pale patch on the dark brown ground color in the middle of the wing is a black spot, nearly overlaid with iridescent scales. On the pale patch, above the middle, a small black spot with iridescent scales, three or four longitudinal black lines running out into the ground color in the apex; below, a large quadrate patch, sometimes divided transversely, containing two transverse patches of iridescent scales. A few iridescent scales along termen below apex. Hind wings dark brown, on underside an irregular paler submarginal band. Expanse, 10.5–11 mm.

Type (♂), paratype (♀), Two Medicine Lake, July 16; in dry meadows.

Close to *occidentella* Dyar, but smaller and darker, and with the oblique iridescent streak beyond the basal fascia in that species replaced by a black spot overlaid with iridescent scales.

**Choreutis occidentella** Dyar.

This is one of the commonest micros in the region at altitudes from 4500 to 5500 feet in moist meadows or forest openings. Specimens taken at Glacier Park Station, July 14; Two Medicine Lake, July 15-16; St. Mary, July 18; Canyon Creek, July 23. In some of these specimens the small black spot with iridescent scales above the large quadrate spot is absent; the ground color varies from an ochreous brown to dark grayish brown.

**Choreutis balsamorrhizella** Busck.

Near Going-to-the-Sun Chalets, St. Mary Lake, July 20; flying around the food plant.

**PLUTELLIDAE.****Plutella vanella** Walsingham.

Glacier Park Station, July 29.

**Plutella maculipennis** Curt.

This species was observed to be abundant in the park.

**YPONOMEUTIDAE.****Argyresthia oreasella** Clemens.

One specimen taken at Glacier Park Station, July 29, cannot be differentiated from eastern specimens. Oak cannot be the food plant here, at least, as there are no oaks here.

**COLEOPHORIDAE.**

Judging from the number collected during the short stay in the park, the region is unusually rich in species of *Coleophora*. Twelve species were collected of which ten seem to be undescribed. Of these, but two are here described, the others are either represented by too short series, or are not sufficiently striking in the absence of a knowledge of the life history, to be described except in monographic work.

**Coleophora tenuis** Walsingham.

One specimen, Two Medicine Lake, July 16, taken in dry meadows, answers well the description of this species, but is slightly smaller (15 mm. expanse).

**Coleophora albacostella** Chambers.

Very common, Glacier Park Station, July 14 and July 28, flying amongst patches of *Polygonum erectum*, upon which it probably feeds. Chambers' type came from Texas, which is included in the

range of this plant. There is one other specimen in my collection from Tolland, Colorado.

***Coleophora brunneipennis* n. sp.**

Palpi brownish ochreous, shaded with fuscous beneath and on the outer side, second segment rather long, slightly tufted, third segment a little over one-half the second. Antennae brown, banded with whitish, basal segment thickened with scales. Head, thorax and fore wings of a uniform light brown or brownish ochreous color, rarely duller with a grayish suffusion, but always entirely without markings or dusting. Cilia concolorous, toward tornus brownish fuscous. Hind wings and cilia fuscous. Legs brown. Expanse, 12–17 mm.

Type (♂), Glacier Park Station, July 14, eighteen paratypes (♂ and ♀), Glacier Park Station, July 14 and 28.

This species was much commoner on July 14 than at the later date, when only four specimens were secured. A number of the specimens were taken on flowers of *Erigeron speciosus*; some specimens were taken at the same time and place as the preceding species, amongst *Polygonum*. It is possible that one of these plants is the food plant of the larva.

***Coleophora crinita* n. sp.**

Second segment of labial palpi very long, porrected, clothed with long scales, roughened above, with a long projecting truncate tuft beneath at apex, exceeding the short third segment and sometimes concealing it, whitish, fuscous beneath and on outer side. Head and basal segment of antennae whitish ochreous, the latter slightly thickened with scales, antennal stalk white, banded above with dark brown. Fore wings pale ochreous or brownish ochreous, with the costa from base to apex white, the dorsal margin more narrowly white from base to apex of wing, a rather broad white streak from base above and parallel to the fold, a narrow parallel streak close to it just below the fold, four oblique white streaks running out into the costal cilia along the veins, two less distinct streaks running into the cilia below apex. Hind wings and cilia grayish ochreous. Legs whitish, with a fuscous line along the outer side. Expanse, 12–18 mm.

Type (♂), July 22, McDermott Lake, eighteen paratypes (♂ and ♀), Going-to-the-Sun, July 20–21, McDermott Lake, July 22 and 24; Glacier Park Station, July 29, all in dry meadows.

The long palpi, with the unusually long projecting tuft of the second segment, are the chief characters for recognition of this species. The markings of the fore wing are exactly those of *C. acutipennella* Wlsm., in fact, the figure and description of the wing of that species would serve equally well for the present species.



Walsingham, however, mentions no unusual features of the palpi in his species.

#### ELACHISTIDAE.

##### ***Elachista stramineola* n. sp.**

Palpi whitish inwardly and above; second segment black outwardly except at extreme tip; third segment blackish outwardly except at base and extreme tip. Antennae blackish, faintly marked with narrow paler annulations. Head yellowish gray. Thorax gray, patagia whitish, sparsely speckled with fuscous. Fore wings fuscous, a little dusted with yellowish white, especially in the basal third. At base of dorsum a yellowish white patch, not extending onto the costal half of base, is speckled with a few fuscous scales; a white slightly irregular fascia at one-third nearest base on costa; a triangular costal spot at two-thirds reaching halfway across the wing, and a little nearer base on dorsum a short broad whitish spot. Scales along termen yellowish toward their bases; last row of scales along termen with a whitish bar immediately preceding the black tip. Cilia gray. Hind wings and cilia pale fuscous. Legs fuscous, tips of segments and a bar across basal third of hind tibiae yellowish white. Abdomen grayish above, yellowish white beneath. Expanse, 11.5 mm.

Type (♀), Glacier Park Station, July 29, in dry meadows.

This species may be distinguished from all other species with white at the base of the wing by the dull yellowish white of the markings and the position of the basal pale patch, which is confined to the dorsal half of the wing. Venation as figured in Meyrick's "Handbook."

##### ***Elachista agilis* n. sp.**

Palpi dark brown, antennae dark brown. Head and thorax dark leaden metallic. Fore wings dark brown, somewhat shining, with metallic silvery or golden markings: at basal fourth on dorsum, an oblique spot reaching the fold, at middle of costa a nearly perpendicular transverse spot nearly reaching the fold, in a line with this spot a small roundish spot below the fold, a spot at tornus and farther out, a curved costal streak, sometimes nearly enclosing the apex. Hind wings and cilia brownish gray. Underside of body silvery. Legs dark brown, femora, apex and spurs of tibiae, and tips of tarsi of the hind legs silvery. Expanse, 7 mm.

Type (♂) and one paratype, Goat Mountain, above Going-to-the-Sun Chalets, about 5000 feet, July 18.

An easily recognized species, quite different from any of our described species. Venation as figured in Meyrick's "Handbook."

##### ***Elachista aurocristata* n. sp.**

Palpi white, antennae white, shading outwardly to fuscous in the male. Head, thorax and fore wings white, with a scarcely percep-

tible yellowish tinge in the female. Fore wings usually entirely immaculate, sometimes with a few scattered brownish ochreous scales; one or two such scales near end of fold, at end of cell and in the apex and along termen. A faint narrow blackish line sometimes present in the cilia at apex and along termen. Hind wings white or pale gray. Legs white, shaded with fuscous. Abdomen white, in the male shaded with golden yellow beneath, and with a golden yellow anal tuft. Expanse, 12 mm.

Glacier Park Station, July 14 and 29; in dry meadows.

Type (♂) and three paratypes (one ♂ and two ♀'s).

Only in one of the males are the scattered ochreous scales present on the fore wings; the wings in the other three specimens are entirely immaculate.

Allied to *E. orestella* Busck, with which it agrees in venation; but easily distinguished by the golden anal tuft of the male.

***Tinagma gigantea* n. sp.**

Labial palpi yellowish white above, scales of tuft grayish. Antennae grayish, tinged with ochreous beneath. Head and thorax dusted about equally with whitish and pale gray. Scales of the ground color of the fore wings are pale gray at their bases, shading into white of varying width, followed by a black tip. A broad blackish transverse fascia just before middle of wing, ill-defined on its inner edge, narrowly margined with white on its outer edge, and outwardly obtusely angulated on the cell; a similar dark shade, its margins not defined, crosses at two-thirds, fading out into the general ground color toward apex. Marginal row of scales nearly black, cilia dark gray. Hind wings dark gray. Legs blackish, slightly dusted with gray; tips of tarsi pale gray. Expanse, 14-15 mm.

McDermott Lake, July 22-24; Going-to-the-Sun, July 20; Glacier Park Station, July 28-29; in dry meadows.

Type (♂), July 24; twenty-one paratypes.

This species flies at dusk. The moth has the peculiar habit of slowly raising and lowering the wing.

The markings are similar to those of *T. obscurofasciella* Chambers, but *T. gigantea* is much larger and lacks the brownish tint of that species.

***Tinagma pulverilinea* n. sp.**

Labial palpi white, with black specks outwardly. Antennae pale gray. Head and thorax white, dusted with black. Scales of the general ground color of the fore wing with base gray, followed by a usually broad white bar, black-tipped. A broad dark transverse fascia just before middle of wing, convex outwardly and bordered outwardly by a row of scales which are almost entirely white. A

similar dark fascia at two-thirds, convex inwardly and bordered inwardly by a broken line of white scales. In some specimens, the effect of these two white margins with the whitish dusted scales between them is that of a bi-concave dusted white-margined fascia. The second dark fascia sometimes passes imperceptibly into the white dusted apex, sometimes is more or less limited outwardly by an incomplete line of white scales. Marginal line of scales fuscous, cilia gray. Hind wings gray. Legs white, dusted with black, hind pair most densely. Thorax beneath nearly pure white, abdomen dusted with black. Expanse, 9–11 mm.

On cliffs on the side of Goat Mountain, above Going-to-the-Sun Chalets, July 18, flying in the sun.

Type (♂) and four paratypes (♂ and ♀).

In general appearance quite different from the other two American species of the genus, but with the same type of markings.

#### GRACILARIIDAE.

**Lithocolletis oregonsis** Walsingham.

Mines collected near Baring Creek, July 20, on *Symphoricarpos* sp. The mine is a small tent mine on the underside of the leaf, with epidermis much wrinkled and a patch of leaf tissue in the middle of the mine not consumed. Imago, July 28. The species was described from Oregon.

**Acrocercops astericola** F. and B.

McDermott Lake, July 24. I also have specimens of this species from southern Oregon.

**Gracilaria acerifoliella** Chambers.

I refer with little doubt to this species, specimens reared on a bush maple (*Acer* sp.), near Going-to-the-Sun Chalets.

In these specimens, there is none of the brown dusting described by Chambers for this species, but the wings are pale brownish or reddish ochreous, with purple reflections and a pale costal triangle produced along the costa. Inasmuch as similar undusted forms occur in other species (for example, *G. ostryaeella* Chambers), the identification is probably correct. The larval habits agree closely with those described for *G. acerifoliella*; a large leaf is often entirely folded up by the time the larva finishes eating.

Larvae collected July 18, imagoes August 6–14.

**Gracilaria alnivorella** Chambers.

The larvae were very common at the lower altitudes on alder.

## SCYTHRIDAE.

**Scythris magnatella** Busck.

Larvae in webs on fireweed (*Chamaenerion angustifolium*), imagoes August 5.

**Scythris impositella** Zeller.

Glacier Park Station, July 29. Mines, presumably of this species, were observed on *Aster* and on *Arnica* sp.

**Scythris eboracensis** Zeller.

Two Medicine Lake, July 16; Going-to-the-Sun, July 20-21. Some of these specimens are unusually pale and grayish.

## LYONETIIDAE.

With the exception of *Tischeria heliopsisella* Chambers, which was a common miner on sunflower near Baring Creek, only one other member of this family was observed, a *Bucculatrix* feeding on *Arnica* sp.

## INCURVARIIDAE.

**Lampronia quieta** n. sp.

Palpi brownish yellow, outer side of labial palpi dark brown; antennae dark brown; face and head brownish yellow. Thorax brown, patagia and a small spot on the middle of the base of the fore wing buff. Fore wing brown, scarcely shining, marked with pale buff spots; a large oblique quadrate spot at basal fourth on dorsum, reaching a little more than halfway across the wing; a large costal spot at two-thirds, concave on its inner side, convex on its outer side, and produced a little along the costa towards apex; a dorsal spot just before tornus, with its inner edge perpendicular to the margin, its outer edge oblique; a narrow elongate spot along termen below apex; costal cilia brown, buff-tipped towards apex, cilia buff at apex and on termen to the lower end of the buff spot, thence dark brown to the tornus. Hind wings and cilia gray. Legs buff, the two anterior pair with fuscous shading. Expanse, 18 mm.

Type (♀), Canyon Creek, 5500 feet, July 23; resting on a rock near the water.

Nearest to *tailorella* Kearf., but without the purple and coppery luster of that species.

**Lampronia obscuromaculata** n. sp.

Palpi gray, second segment of labial palpi white above; antennae gray, white scaled toward base, cilia of the male 1; head with gray and whitish hairs intermixed. Fore wings shining very pale gray, with a few scattered fuscous scales, base of costa fuscous; marked

with scarcely defined white spots and fasciae placed as follows: a spot in the fold near base; a quadrate spot on basal third of dorsum reaching just beyond fold; just beyond middle a transverse fascia; at apical fourth of costa a spot reaching about halfway across the wing. Hind wings and cilia gray, darker than the fore wings, with purplish iridescence, thinly scaled. Legs gray. Expanse, 15 mm.

Type (♂), Two Medicine Lake, July 16; in dry meadows.

In this specimen, veins 7 and 8 of the fore wing are coincident as in *Greya*, but the other characters and the general habitus of the insect are those of *Lampronia*. As shown by the following species, such individual variations occur.

***Lampronia variata* n. sp.**

Palpi brownish gray, labial palpi with whitish scales above; antennae black; head brownish, some whitish hairs on the face. Thorax and fore wings shining bronzy brown; at basal third of dorsum a pale yellowish spot reaching the fold; just before tornus a pale yellowish spot reaching two-thirds across the wing. Tips of cilia whitish. Hind wings dark brown with a faint purple luster. Legs dark brown. Expanse, 11 mm.

Type (♂), Two Medicine Lake, July 16; paratypes (♂ and ♀), Two Medicine Lake, July 15, in forest openings.

In some of these specimens 7 and 8 of the fore wings are coincident.

***Lampronia politella* Walsingham.**

Three males, Two Medicine Lake, July 15, Going-to-the-Sun, July 21, collected in early morning in the dry meadows. The expanse, 18–20 mm., is somewhat more than that given by Walsingham; but in other respects, these specimens agree closely with the description, showing very markedly the aeneous tinge of the fore wings.

***Lampronia piperella* Busck.**

Two Medicine Lake, July 15, in dry meadows; one female specimen which has all the veins of the fore wing present and palpal characters as in the other species of the genus, and not as described for the very similar *Greya punctiferella* Walsingham.

**CHALCEOPLA nom. nov.**

This generic name is proposed to replace *Cyanauges* Braun (Ohio Jour. Sci., XX, 24, 1919), preoccupied by *Cyanauges* Gorham in the Coleoptera.

***Chalceopla itoniella* Busck.**

Two Medicine Lake, July 16; Canyon Creek, July 23; Swift-current Valley, July 27; flying in sunshine.

In *Chalceopla itoniella* veins 7 and 8 of the fore wing are separate, as is also the case in the two following species. The genus *Chalceopla* is most easily recognized by the spreading bristles below and at apex of second segment of the labial palpi, the minute or small maxillary palpi and the two kinds of scales, the greenish or bluish broad scales and the elongate metallic scales.

***Chalceopla cockerelli* Busck.**

Two Medicine Lake, July 16.

***Chalceopla ovata* n. sp.**

Second segment of labial palpi white, with black bristles, terminal segment black; hairs of head whitish; antennae black. Thorax and fore wings shining bronzy brown, with pale yellowish markings; a small elongate spot in fold near base; a spot on middle of dorsum reaching fold; an oblique curved patch at three-fifths of costa is narrow on the costa, but expands into an oval in the middle of the wing. Hind wings dark brown with a purple tinge, and with dull golden metallic scales on the margin projecting into the cilia. Legs dark brown with a bronzy luster. Expanse, 7.5 mm.

Type (♀), July 18, on the cliffs on Goat Mountain above Going-to-the-Sun Chalets.

There is no differentiation in shape between the metallic over-scales and the ordinary scales in this species in the fore wing; on the hind wing, metallic scales are only found at the extreme margin.

***Greya subalba* n. sp.**

Labial palpi whitish, third segment black beneath; maxillary palpi short, folded portion reduced to a short segment, which is usually not bent over in the dead insect; antennae gray; head white. Fore wings varying in color from shining white to pale buff, with base of costa fuscous. Hind wings gray, with whitish cilia. Legs white, fuscous shading on the two anterior pair. Expanse, ♂, 14–16.5 mm.; ♀, 11–14 mm.

Type (♂), Two Medicine Lake, July 16; twenty-two paratypes (♂ and ♀), Glacier Park Station, July 14; Two Medicine Lake, July 15–16, McDermott Lake, July 23, all in dry meadows.

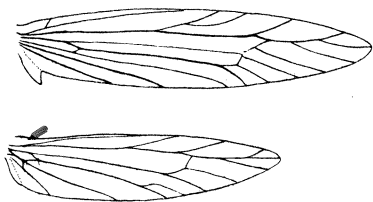
The whitish immaculate fore wings distinguish this species from the others of the genus. The terminal segment of the maxillary palpi is only about half the length of the corresponding part in *Greya solenobiella* Wlsm.

## MICROPTERYGIDAE.

## ACANTHOPTEROCTETES new genus.

Labial palpi very short, directed outwardly. Maxillary palpi long, filiform, folded. Tongue short. Head densely rough-haired. Antennae four-fifths, slender, filiform, smoothly scaled, basal segment slightly swollen. Middle tibiae with one apical spur, posterior tibiae smooth, middle and apical spurs long.

Fore wing: elongate lanceolate, fibula large, second and third anal veins separate and distinct to the margin, *Cu* and 1st *A* coalesced at base, posterior arculus distinct, *Cu*<sub>1</sub> and *Cu*<sub>2</sub> distant, base of media distinct, not forked within the cell, forming an almost straight linewith *M*<sub>3</sub> + <sub>4</sub>, transverse vein perpendicular between *Cu*<sub>1</sub> and *M*<sub>3</sub> + <sub>4</sub>, and nearly meeting the very oblique transverse vein between *M*<sub>3</sub> + <sub>4</sub> and *R*<sub>4</sub> + <sub>5</sub>, which becomes obsolescent near *M*<sub>3</sub> + <sub>4</sub>, *M*<sub>2</sub> arising near the middle of the oblique transverse vein, *M*<sub>1</sub> from middle of stalk of *R*<sub>4</sub> and *R*<sub>5</sub>, *R*<sub>4</sub> and *R*<sub>5</sub> long stalked, *R*<sub>5</sub> to apex, *R*<sub>2</sub> + <sub>3</sub> coincident, from near end of cell, *R*<sub>1</sub> from before middle, with an accessory vein, *Sc* not forked, humeral vein present.



Hind wing: elongate lanceolate, a little narrower than the fore wing, without frenulum, but with series of costal spines, venation similar to that of the fore wing, with the exception of the anastomosis of the first and second anal

veins near the base, the absence of the transverse vein between *Cu*<sub>1</sub> and *M*<sub>3</sub> + <sub>4</sub>, absence of accessory vein from *R*<sub>1</sub>.

Genotype, *Acanthopteroctetes tripunctata* n. sp.

The forking of the base of media nearer to the margin than in other Micropterygid genera has resulted in a nearly straight discal vein, and a consequent configuration of the discal cell similar to that in other Lepidoptera. The presence of three separate anal veins in the fore wing is an unusual feature. The presence or absence of a cross-vein between the first and second anal veins of the fore wing could not be observed without injury to the unique type.

This genus belongs in the subfamily Eriocraniae, but is not closely related to any described genus. It is nearest to *Eriocrania*.

In addition to the species described below, I have a single specimen, in rather poor condition, of another species of this genus from the southern Sierras.

***Acanthopteroctetes tripunctata* n. sp.**

Palpi brown with a slight golden tinge, hairs of the head reddish brown; antennae blackish brown, basal segment paler. Fore wings brown, with a faint golden and purplish luster, bases of scales a little paler; a slightly irregular yellowish spot on the disc at one-third, at three-fifths, a yellowish costal and an opposite dorsal spot nearly meeting. Scales at apex a little paler. Hind wings brown, a little darker than the fore wings. Legs dark brown. Abdomen dark brown, median line beneath paler. Expanse, 11 mm.

Type (♂), Canyon Creek, 5500 feet, July 23; flying in sunshine in a forest opening.

The general appearance of this moth suggests a Tineid rather than a Micropterygid.